Amendments to the Claims:

A listing of all pending claims is presented below, in which amended claims are preceded by the label (currently amended) and claims not amended are labeled either (previously presented) or (original).

1. (currently amended) A method for increasing the hybridization rate of nucleic acids in a nucleic acid assay, said method comprising:

a) providing probe nucleic acid molecules of known sequence attached to a solid support within multiple microwells, said microwells being at multiple locations on said support and being surrounded by coils suitable for producing localized DC magnetic fields within said microwells, said microwells being connected by channels, said solid support being selected from the group consisting of silicon, glass, and metals that is or is coated with a metal selected from the group consisting of silver, copper, gold, platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II);

b) providing target molecules consisting essentially of nucleic acid molecules labeled with paramagnetic labels having a diameter of from about 1 nanometer (nm) to about 10 nm;

c) attracting said labeled nucleic acid target molecules to the solid support by activating said coils to provide a localized DC magnetic field within each of said microwells effective to induce rapid migration of said labeled nucleic acid target molecules;

d) hybridizing the labeled nucleic acid target molecules with their complementary pairs at a hybridization rate greater than the hybridization rate in the absence of said attracting by said localized DC magnetic ~~field~~ fields within each of said microwells;

e) washing the support and inverting the polarity of the localized DC magnetic ~~field~~ fields within each of said microwells to remove any unbound or nonspecifically bound molecules; and

f) detecting the hybridized target nucleic acid molecules.

2. (canceled)

3 (canceled)

4. (previously presented) A method of claim 1 in which the paramagnetic labels comprise superparamagnetic particles.

5. (original) A method of claim 1 in which the paramagnetic labels comprise paramagnetic porphyrins.

6. (original) A method of claim 1 in which the paramagnetic labels are attached to the nucleic acid molecules using cleavable conjugating molecules.

7. (original) A method of claim 1 in which the nucleic acid molecules are oligonucleotides, genomic DNA, cDNA, RNA or fragments thereof.

8. (previously presented) A method of claim 1 in which at least one of said probe nucleic acid molecule and said nucleic acid target molecule is labeled with a fluorescent detection molecule.

9. (currently amended) A method for increasing the hybridization rate of nucleic acids in a nucleic acid assay, said method comprising:

a) providing nucleic acid target molecules attached to a solid support within multiple microwells, said microwells being at multiple locations on said support and being surrounded by coils suitable for producing localized DC magnetic fields within said microwells, said microwells being connected by channels, said solid support being selected from the group consisting of silicon, glass, and metals that is or is coated with a metal selected from the group consisting of silver, copper, gold, platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II);

b) providing probe molecules consisting essentially of nucleic acid molecules of known sequence labeled with paramagnetic labels having a diameter of from about 1 nanometer (nm) to about 10 nm;

c) attracting said labeled nucleic acid probe molecules to the solid support by activating said coils to provide a localized DC magnetic field within each of said microwells effective to induce rapid migration of said labeled nucleic acid probe molecules;

d) hybridizing the labeled nucleic acid probe molecules with their complementary pairs at a hybridization rate greater than the hybridization rate in the absence of said attracting by said localized DC magnetic ~~field~~ fields within each of said microwells;

e) washing the support and inverting the polarity of the localized DC magnetic ~~field~~ fields within each of said microwells to remove any unbound or nonspecifically bound molecules; and

f) detecting the hybridized probe nucleic acid molecules.

10. (canceled)

11. (canceled)

12. (previously presented) A method of claim 9 in which the paramagnetic labels comprise superparamagnetic particles.

13. (original) A method of claim 9 in which the paramagnetic labels comprise paramagnetic porphyrins.

14. (original) A method of claim 9 in which the paramagnetic labels are attached to the nucleic acid molecules using cleavable conjugating molecules.

15. (original) A method of claim 9 in which the nucleic acid molecules are oligonucleotides, genomic DNA, cDNA, RNA or fragments thereof.

16. (previously presented) A method of claim 9 in which at least one of said probe nucleic acid molecule and said nucleic acid target molecule is labeled with a fluorescent detection molecule.